

### ABSTRACT

Disclosed are the surprising discoveries that aminophospholipids, such as phosphatidylserine and phosphatidylethanolamine, are stable and specific markers accessible on the luminal surface of tumor blood vessels, and that the administration of an anti-aminophospholipid antibody alone is sufficient to induce thrombosis, tumor necrosis and tumor regression *in vivo*. This invention therefore provides anti-aminophospholipid antibody-based methods and compositions for use in the specific destruction of tumor blood vessels and in the treatment of solid tumors. Although various antibody conjugates and combinations are thus provided, the use of naked, or unconjugated, anti-phosphatidylserine antibodies is a particularly important aspect of the invention, due to simplicity and effectiveness of the approach.